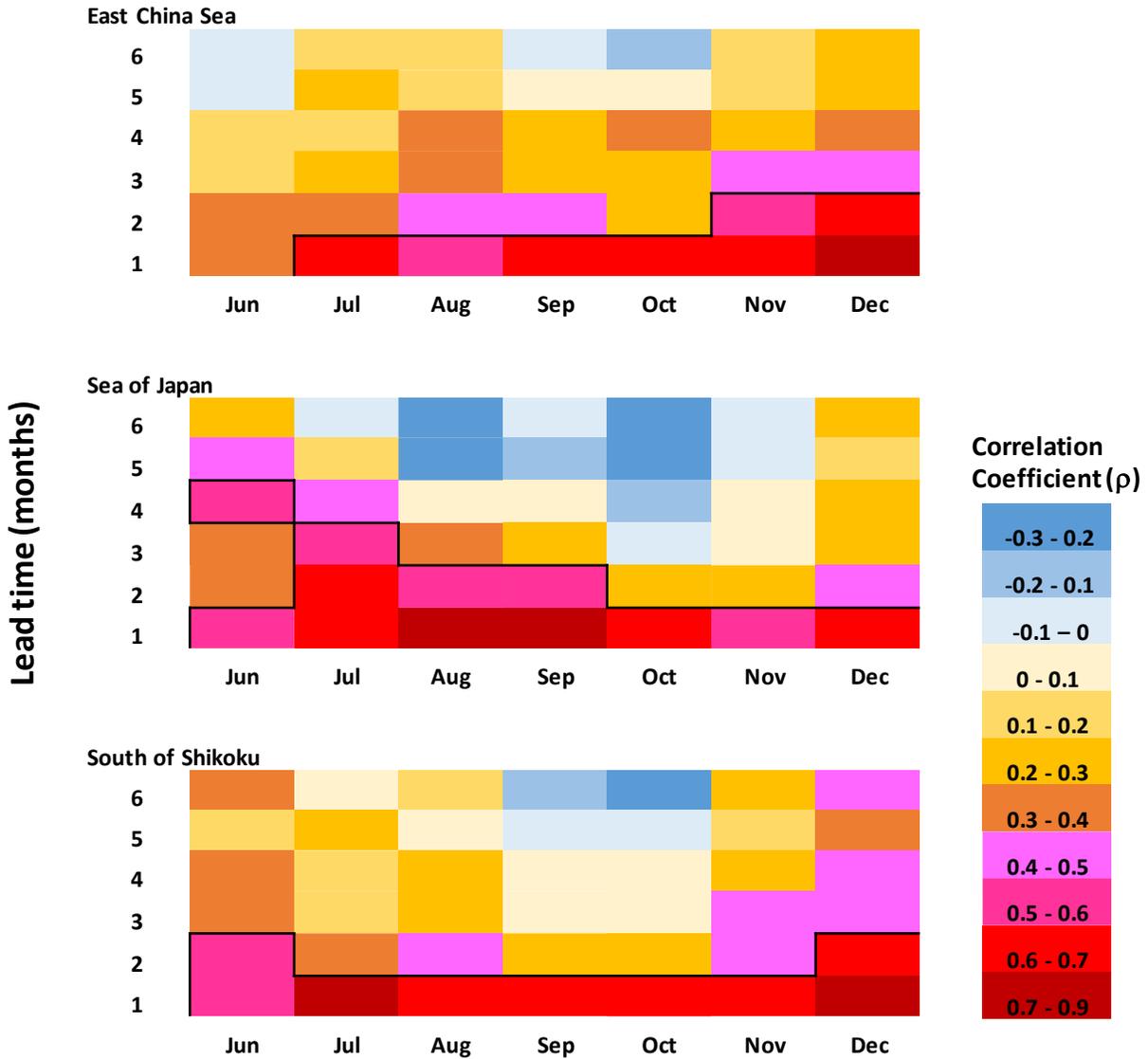
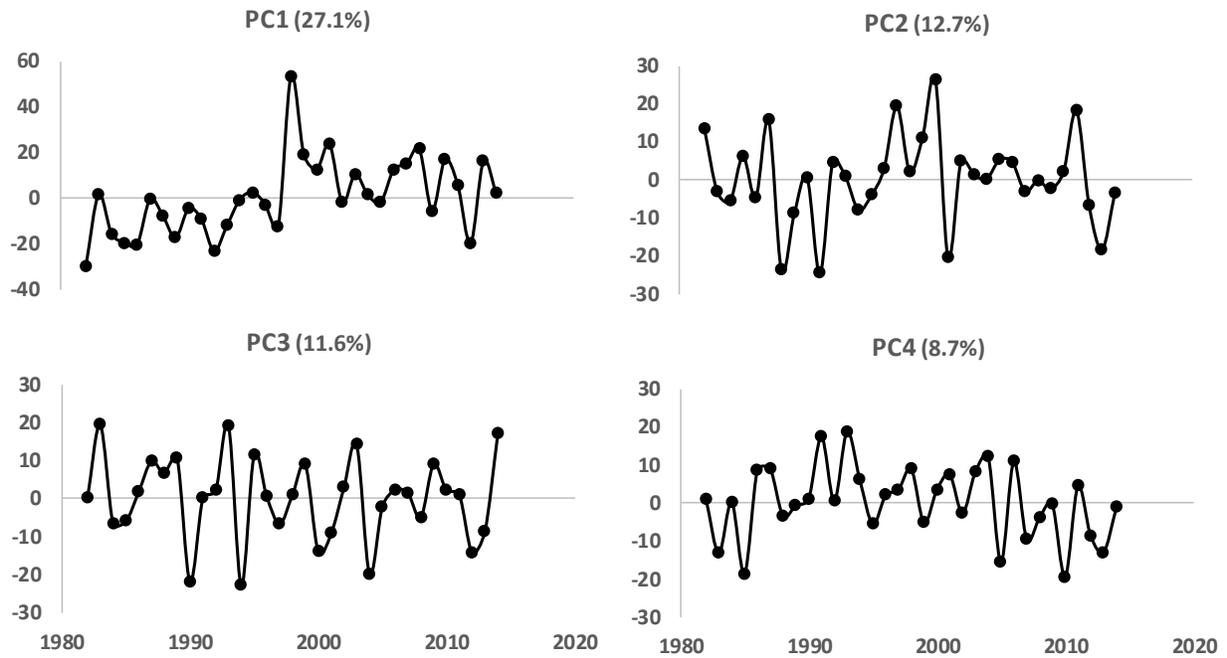


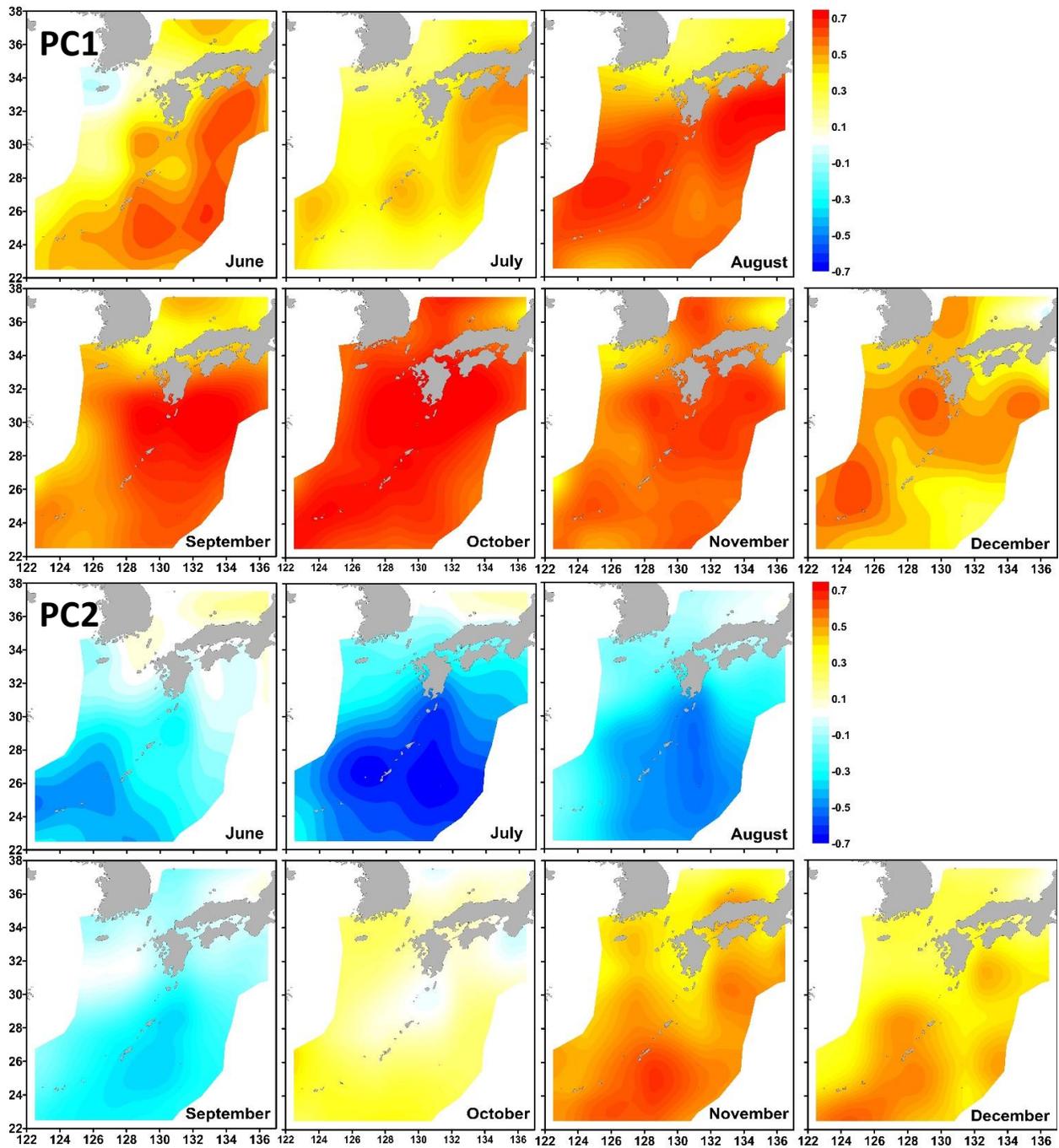
**Supplementary Fig. S1:** Schematic of workflow showing data sources and models used in this study



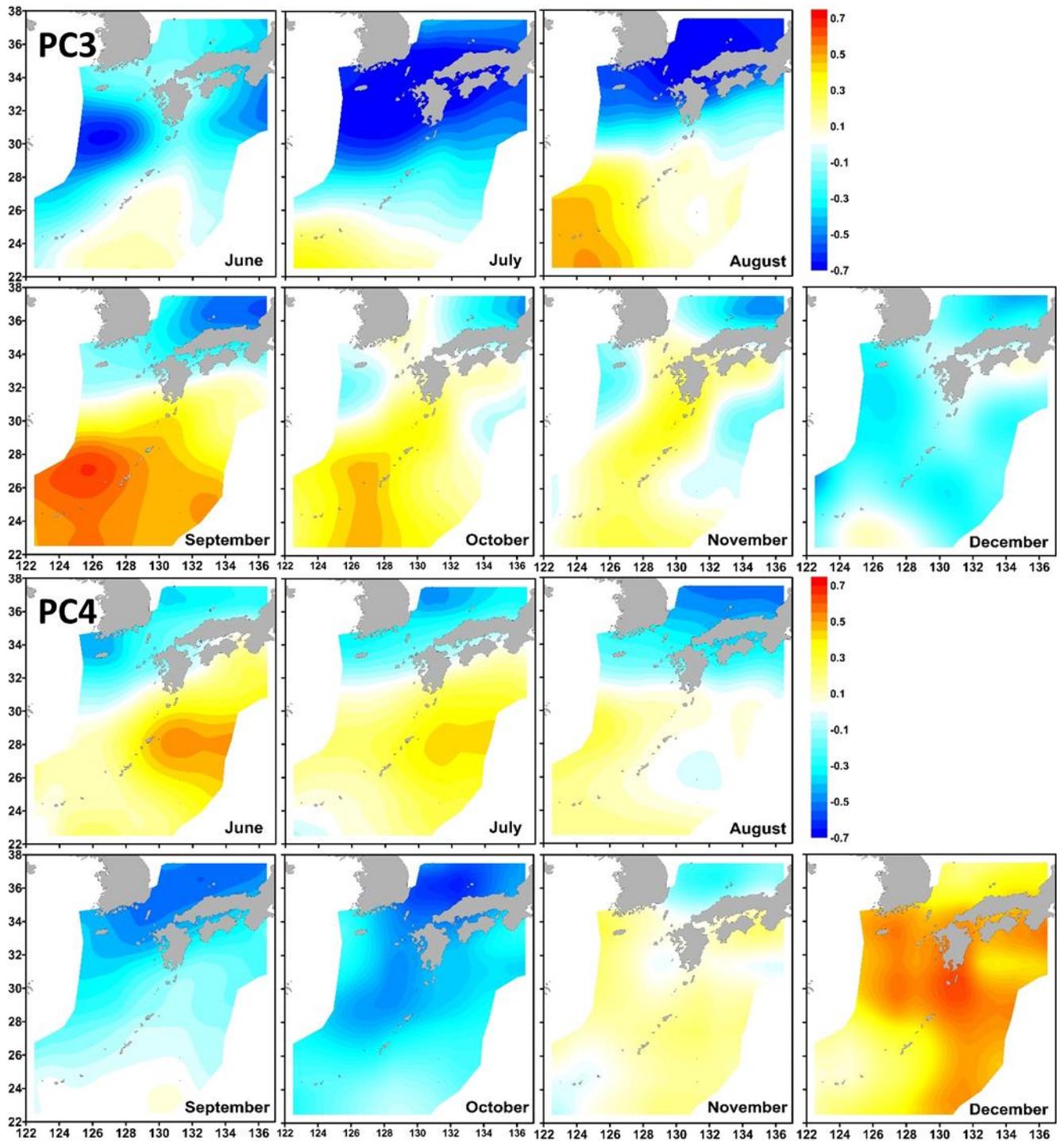
**Supplementary Fig. S2:** Monthly persistence of SST anomalies within each of the three areas of interest. Lead times of up to 6 months are shown on the y-axis. Correlation coefficients between SST anomalies for each month, at each lead time, are coded by color. The black lines represent  $\rho = 0.5$ , with correlations below this line  $> 0.5$ , and those above  $< 0.5$ .



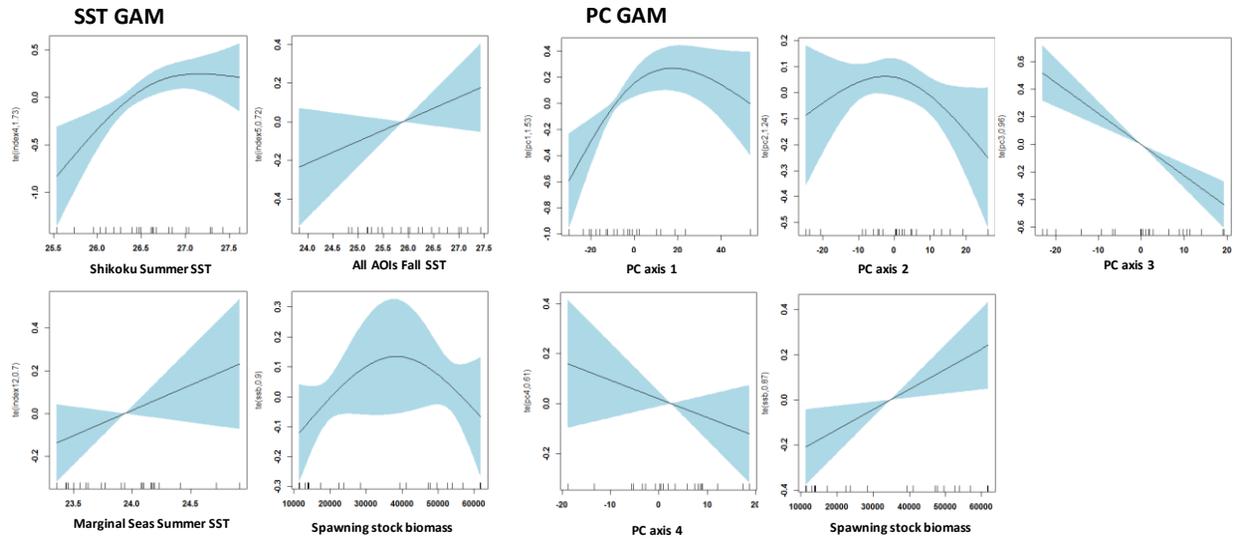
**Supplementary Fig. S3:** Time series of mean annual values of the first four PCs from 1982 - 2014, along with the percentage of the variability explained by each axis.



**Supplementary Fig. S4:** Spatial correlations of Principal Components (PCs) 1 and 2 with SST anomalies within each month for the study area



Supplementary Fig. S5: As for S4, but for Pcs 3 and 4.



**Supplementary Fig. S6:** Partial plots from the two Generalized Additive Models (SST GAM and PC GAM) predicting annual PBF recruitment. The SST GAM used the four SST indices shown in Fig. 3, as well as spawning stock biomass (SSB), to predict annual PBF recruitment. The PC GAM used the first five principal component axes of the PCA on regional SST as predictor variables, as well as SSB.